

We claim:

- 1) An isolated polynucleotide comprising one selected from the group consisting of:
 - a) a polynucleotide having the sequence set forth in SEQ ID NO: 2, 3, or 147;
 - b) a polynucleotide encoding a transcription factor, which polynucleotide has a

5 sequence that is at least 70% identical to the sequence set forth in SEQ ID NO: 2, 3, or 147;
 - c) a polynucleotide that is a fragment of any one of b); and
 - d) a polynucleotide that hybridizes under stringent conditions to any one of a) or b).
- 2) A vector comprising at least one polynucleotide of claim 1.
- 3) An expression cassette comprising the isolated polynucleotide of claim 1, wherein

10 the isolated polynucleotide is operably linked to a promoter, and wherein the polynucleotide is in sense or antisense orientation.
- 4) A plant comprising the expression cassette of claim 3.
- 5) The plant of claim 4, wherein the promoter is a seed coat-specific promoter, a tissue-specific promoter, a monocot promoter, the napin promoter, the WEREWOLF promoter,

15 the 35S promoter, the CaMV 19S, the *nos* promoter, the Adh promoter, the sucrose synthase promoter, the tubulin promoter, the actin promoter, the PEPCase promoter, the 7S-alpha'-conglycinin promoter or those promoters associated with the R gene complex, the tomato E8 promoter, the patatin promoter, the ubiquitin promoter, the mannopine synthase (mas) promoter, the glycinin promoter, the soybean vegetative storage protein (vsp) promoter,

20 or a pBAN promoter.
- 6) The plant of claim 5, wherein the plant is soybean, corn or canola.
- 7) A method of increasing oil content in a plant comprising disrupting the function of a protein in the phenylpropanoid pathway of the plant.
- 8) The method of claim 7, wherein the protein in the phenylpropanoid pathway of the

25 plant is selected from the group consisting of a CHS, PAL, TTG1, and LDOX.
- 9) The method of claim 7, wherein the function of the protein is disrupted by suppressing the expression of the gene for said protein.
- 10) A method of generating a plant having increased oil or protein content, as compared to a substantially similar plant not subjected to this method, comprising:

- a) preparing a chimeric gene comprising a polynucleotide sufficient to suppress the endogenous expression of a gene selected from the group consisting of CHS, PAL, TTG1, and LDOX, wherein said polynucleotide comprises at least a portion of the gene, operably linked in sense or antisense orientation on the upstream side to a promoter that directs gene expression, and operably linked on the downstream side to a regulatory sequence for transcriptional termination; and
- b) transforming the plant with the chimeric gene of step (a).
- 11) The method of Claim 10, wherein the gene is CHS or TTG1.
- 12) A plant generated by the method of claim 10.
- 13) A seed produced by the plant of claim 12, wherein the seed is from canola or soybean.
- 14) A food product prepared from the seed of claim 13.
- 15) Oil produced from the seed of claim 13.
- 16) A meal produced from the seed of claim 13.
- 17) A feed produced from the seed of claim 13.
- 18) An isolated soy protein produced by the plant of claim 12.
- 19) The plant of claim 12, wherein the plant is a monocot or a dicot.
- 20) The plant of claim 19, wherein the monocot is selected from the group consisting of corn, rice, wheat, barley, and palm.
- 21) The plant of claim 19, wherein the dicot is selected from the group consisting of *Arabidopsis*, soybean, oilseed *Brassica*, peanut, sunflower, safflower, cotton, tobacco, tomato, potato, and cocoa.
- 22) Oil produced from one or more seeds of a transformed plant containing a nucleic acid molecule that comprises an isolated nucleic acid encoding a chimeric gene comprising a polynucleotide sufficient to suppress the endogenous expression of a phenylpropanoid pathway gene, wherein said polynucleotide comprises at least a portion of the phenylpropanoid pathway gene, operably linked in sense or antisense orientation on the upstream side to a promoter that directs gene expression, and operably linked on the downstream side to a regulatory sequence for transcriptional termination wherein expression of the nucleic acid molecule results in reducing or disrupting the activity of the phenylpropanoid pathway gene product.

- 23) The oil of claim 22, wherein the phenylpropanoid pathway gene is CHS.
- 24) The oil of claim 22, wherein the phenylpropanoid pathway gene is TTG1.
- 25) The oil of claim 22, wherein the phenylpropanoid pathway gene is LDOX.
- 26) The oil of claim 22, wherein the phenylpropanoid pathway gene is PAL.

5 27) The oil of claim 22, wherein the oil is blended with oil from a second source, thereby resulting in a blend.

28) A method for producing a plant with altered protein content comprising disrupting or reducing the activity of a protein in the phenylpropanoid pathway of the plant.

10 29) The method of claim 28, wherein the protein in the phenylpropanoid pathway is selected from the group consisting of CHS, PAL, TTG1, and LDOX.

30) The method of claim 28, wherein the activity of the protein is disrupted or reduced by suppressing the expression of the gene for said protein.

15 31) Protein produced from a transformed plant containing a nucleic acid molecule that comprises an isolated nucleic acid encoding a chimeric gene comprising a polynucleotide sufficient to suppress the endogenous expression of a phenylpropanoid pathway gene, wherein said polynucleotide comprises at least a portion of the phenylpropanoid pathway gene, operably linked in sense or antisense orientation on the upstream side to a promoter that directs gene expression, and operably linked on the downstream side to a regulatory sequence for transcriptional termination wherein expression of the nucleic acid molecule results in reducing
20 or disrupting the activity of the phenylpropanoid pathway gene product.

32) The protein of claim 31, wherein the gene encodes a CHS.

33) The protein of claim 31, wherein the gene encodes a TTG1.

34) The protein of claim 31, wherein the gene encodes a LDOX.

35) The protein of claim 31, wherein the gene encodes a PAL.

25 36) An isolated polynucleotide comprising one selected from the group consisting of:

a) a polynucleotide having the sequence set forth in one of SEQ ID NO: 4 through 17, 29, 30, 32 through 96, 128 through 140, 144, 149, 150, 154 through 164, or 165;

b) a polynucleotide encoding a phenylpropanoid pathway protein, which polynucleotide has a sequence that is at least 70% identical to the sequence set forth in one of

SEQ ID NOs: 4 through 17, 29, 30, 32 through 96, 128 through 140, 144, 149, 150, 154 through 164, or 165;

- c) a polynucleotide that is a fragment of any one of b); and
- d) a polynucleotide that hybridizes under stringent conditions to any one of a) or b).